

costal spine, grayish-hyaline, opaque gray at base; apical cell very narrowly open at some distance before the apex of the wing; fourth vein bent at an angle without stump or wrinkle, the bend not sharp, apical cross-vein a little concave; hind cross-vein curved, nearer to bend of fourth vein; third vein spined at base; tegulae white, halteres yellowish gray.

♀. Differs as follows: Front nearly one-half the width of head; frontal vitta broad, occupying one-third of frontal width; three orbital bristles (on one side, on the other side only two); eyes more distinctly hairy, especially on upper portions; claws and pulvilli hardly shorter.

Length of ♂ 6 mm.; wing 5½ mm. ♀ 7 mm.; wing 6 mm.

Described from three ♂ specimens, and one ♀, bred from chrysalids of

Hyphantria cunea, Las Cruces, New Mexico. This species is best located in Meigenia. The face, however, is not almost perpendicular, the abdomen is short and stout, and the macrochaetae are only marginal unless on the anal segment. It cannot be referred to *Mystacella*, which has the eyes more decidedly hairy.

Note on Phorocera promiscua Towns. Psyche, v. 6, 84. This species was wrongly referred to *Phorocera*, my reason for the reference being that the facial ridges are bristly for fully half their extent. But the eyes are very indistinctly hairy, the species agreeing in this and its other characters with Meigenia. It will be best, I believe, to refer to it as *Meigenia promiscua* Towns.

NOTES ON BOMBYCID LARVAE.—III.

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SCHIZURA EXIMIA Grote.

1882. *Oedemasia eximia* Grt., Bull. U. S. geol. & geog. surv. terr., Hayden, 6, 275.

1891. Thaxter, Can. ent., XXIII, 34.

I have for some time considered this species improperly referred to *Oedemasia*, but I have never found the larva. Dr. Thaxter, however, has bred it, and writes me as follows: "*Oedemasia eximia* resembles *Coelodasys leptinoides** in coloring, but structurally is perhaps more like *biguttatus (ipomeae)*. When at rest it is greatly hunched anteriorly, and the furcate prominence on segm. 4 is very long. I should say it was surely a *Coelodasys*" (= *Schizura*).

I would place it next to *S. leptinoides* and near *Ianassa*.

SCHIZURA BADIA Packard.

1864. *Oedemasia badia* Pack., Proc. ent. soc. Phil., III, 361.

Larva. I have found this larva on *Viburnum lentago*, and it is certainly not an *Oedemasia*. It is without the red hump and black tubercles of *O. concinna*, the body being smooth, with dorsal processes on the 1st, 4th, and 8th abdominal segments; the sides of the thoracic segments are green, but the usual V-shaped mark is, I believe, absent. I have not been able to obtain the larva recently for more careful description.

OEDEMASIA SALICIS Hy. Edw.

1876. *Heterocampa salicis* Hy. Edw., Proc. Cal. acad. sci., VII, 121.

Larva. Third stage. Head black, with a few short hairs; cervical shield bisected, black, as is the anal plate. Body yellow, with short pale hairs growing from black tubercles; joint 5 has a slight dorsal hump somewhat orange tinted, and with four smooth black tubercles, these being part of a

*Described in Ent. amer., vol. 6, p. 230.

transverse row of eight which each segment bears; joint 13 has a double row. The tubercles are not exactly in line, the two dorsal ones being placed anteriorly to the others. Faintly indicated geminate subdorsal and lateral brown lines; thoracic feet dark; length 12 mm.

Fourth stage. Head mahogany red more or less shaded with black; furnished with short hairs; jaws black. Body yellow, a single dorsal and geminate subdorsal, and lateral interrupted pale brown lines. Black tubercles as in the previous stage, but more elongated, the dorsal ones on the hump and the subdorsal ones on joints 3 and 4 especially so. There is also a slight hump on joint 12 with two elongated tubercles. Besides the four tubercles on each side are two more above the bases of the legs. The lines are obsolete behind joint 11, and the arrangement of the tubercles is confused. Cervical shield elevated, bisected; feet and anal plate black. Venter pinkish. The anal pair of feet are held elevated.

As the stage advances the geminate brown lines become filled in with white, and a narrow, interrupted brown line appears between the dorsal and subdorsal lines and between the subdorsal and lateral lines. The hump on joint 5 has a decided rose tint.

Fifth stage. As in the preceding stage, but the black tubercles are still more prolonged, especially the subdorsal ones and the dorsal on joint 5. The hump on joint 5 is rose color, that on joint 12 yellow; the lines are black, except those that last appeared, which are brown, the geminate ones filled in with white, and all interrupted at the humps and obsolete on joint 13. Anal feet yellow, black at their bases.

Food plant. Maple (*Acer*). Larvae from the Yosemite Valley, California, in August.

I did not succeed in obtaining any moths from these larvae, as the stage ride out of the valley was more than they could endure; but, from a comparison with Mr. Edwards' de-

scription, there is no doubt that they are *O. salicis*.

This species is the California representative of the Eastern *O. concinna* Sm. Abb., but seems specifically distinct.

HETEROCAMPA GUTTIVITTA Walker.

1855. *Cecrita guttivitta* Walk., Cat. Brit. mus., V, 992.

1890. *Cecrita guttivitta* Packard, Proc. Bost. soc. nat. hist., XXIV, 543.

Larva. Closely allied to *Heterocampa biundata* Walk., which I have elsewhere described.* Dr. Packard has described the present species, but the larvae that I have seen do not agree with his description. I give the last two stages.

Fourth stage. Head higher than wide, conoidal in outline, flat in front; pale greenish, a curved band from the vertex to antennae dark crimson, centered with and bordered posteriorly by whitish. Labrum and antennae yellow; jaws red brown; width 2.1 mm. Body thickest at joint 8 when at rest; feet normal, the anal pair elevated; on the anterior edge of joint 2 is a yellow line containing two brown points, which apparently represent horns of a previous stage. (In *H. biundata* the horns are present at this stage.) A narrow white dorsal line, edged with black on joints 2 and 3, obsolete on joint 13; a yellow, subdorsal line fading out anteriorly on joint 3, edged inwardly with dark brown on joints 12 and 13, and with white outwardly on the anal plate, narrowly and obliquely interrupted on the anterior part of joint 11. Between these two lines on each side is a supplementary dorsal line, which starts from the dorsal line on joint 5, and, running parallel to it, joins it again on joint 8, immediately leaving it and running to the subdorsal line which it joins on joint 11, just posterior to the interruption. Faint traces of a yellow stigmatal line. The green of the

* By error as *H. subrotata* Harv., Ent. amer., VI 209.

body is speckled with small black spots on the sides and on the back of the anterior segments. Feet yellowish, the anal pair white with a narrow, longitudinal black line, and tipped with yellow.

Fifth stage. Width of head 3.3 mm. Vertical lines geminate, somewhat pulverulent on a white ground; color green, labrum whitish, mouth parts purple-red; ocelli black; cervical shield narrowly yellow in front, smooth, without tubercles.* The body is marked as before, the dorsal lines white, the subdorsal yellow, the stigmatal absent. In one example the lines were partly obsolete especially in the fourth stage. As the present stage advances white shades appear in the space enclosed by the anterior supplementary dorsal lines and below the subdorsal line on joint 13 while the subdorsal line becomes partly white. The lateral region of the body is dark green with purple dots, the dorsal region yellowish green with a general faint white shading. On one, a pink spot appeared in the subdorsal band on joint 7.

Cocoon. The larvae enter the ground and appear an extremely slight web of silk.

Pupa. Of normal shape, cylindrical, the body punctured and cases creased; antennae cases prominent. The cremaster consists of two parallel spines, twisted a little near the end and barbed, each bearing two little spurs the anterior one pointing inward, the posterior one outward. A curved row of six sub-cubical granulations is situated at the posterior edge of the thorax. Color shining mahogany red, darker on the cases. Length 19 mm; width 5 mm.

The species is occasionally double-brooded and the winter is passed in the pupa state.

Food plants. Oak (*Quercus*), Witch-hazel (*Hamamelis*), Hickory (*Carya*), Chestnut (*Castanea*) and Birch (*Betula*).

Larvae from Dutchess and Ulster counties, N. Y.

DRYOPTERIS ROSEA Walker.

1855. Walk., Cat. Brit. mus., V, 1164. *Drepana*.

1887. Grote, Can. ent., XIX, 50.

1888. Dyar, Ent. amer., IV, 179.

1890. Packard. Proc. Bost. soc. nat. hist., XXIV, 489.

This species is double brooded. The moths of the first brood appear about the middle of June and from eggs laid by them the summer larvae are produced which develop into moths towards the end of August. The second brood of larvae hibernate exposed on the stems of the food plant in the fourth or fifth larval stages and complete their transformations in the following spring, emerging as perfect insects in June. There appear to be six stages.† There is not much change in coloration except that during hibernation the color is of a uniform brown, resembling the color of the twigs of the food plants, and at maturity it is very variable, often decidedly greenish, resembling the leaves upon which the larvae rest. I have already noted how the larvae are protected from observation in their early stages.

The cocoon is formed of silk inside of the rolled edge of a leaf.

The pupa is cylindrical, a little flattened ventrally; eyes and wing cases prominent; blunt at both ends, the head almost square; the abdominal segments not tapering but the last square and blunt. Cremaster a short thick rounded prominence which is smooth. The body is punctured dorsally, the wing cases finely creased. Color brownish yellow, the head, thorax and anal segment heavily shaded with blackish brown while the cases and back are also shaded, but less heavily. Eyes black; spiracles dark brown. Length 11 mm.; width 4 mm.

Food plants — *Viburnum acerifolium*, *V. lentago* and *V. dentatum*.

Not uncommon on its food plants in Dutchess and Ulster Counties, New York.

* Differing markedly from Dr. Packard's description.

† See Psyche, vol. 5, page 421.